REMARKS

The examiner rejected claim 10 under 35 U.S.C. 112, second paragraph, as being indefinite.

Applicant's claim 10 is proper under 35 U.S.C. 112. Nevertheless, to advance prosecution, Claim 10 has been amended to call for a resistor voltage divider coupled to a feedback input of the converter, the resistor voltage divider having a resistor voltage divider ratio value selected to provide a voltage to the feedback input, to control the DC/DC converter to provide a fixed output voltage that is less than the full charge voltage of the rechargeable cell.

The examiner states: "In Claim 10, "the resistor voltage divider..."is confusing and not clear because how a fixed output voltage being less that the full charge voltage of the rechargeable cell, since the rechargeable cell has fixed voltage and there is possibility that after two or three time charging the battery at full charge the full charge capacity will vary. It is not clear how to select resistance value?"

The examiner appears to ask two questions. One question being what happens since the rechargeable cell has fixed voltage and there is possibility that after two or three times charging the battery at full charge voltage, the full charge capacity will vary. The examiner's question is irrelevant for a number of reasons. One reason is that the claim does not call for charging at the full charge voltage. In addition, the claim clearly says that the DC/DC converter provides a fixed output voltage that is less than the full charge voltage of the rechargeable cell. That limitation is clearly supported in the specification and clearly recited in the claim.

As for the other question: "How to select resistance value?" Applicant replies that a person of ordinary skill in the art of dealing with DC-DC converters would be able to the voltage at feedback terminal of the DC-DC converter, in order to provide a voltage level that is less than the full charge voltage of the rechargeable cell at the output of the DC-DC converter

Accordingly, claim 10 is proper under 35 U.S.C. 112, second paragraph.

The examiner rejected claims 10, 11, 14-17, 19 and 35-37 under 35 U.S.C. 102(b) as being anticipated by Fishman et al (Fishman).

Applicant's claim 10 is distinct over Fishman. Claim 10 calls for a switching type DC/DC boost type converter that receives energy from a primary cell *** and is arranged to deliver the energy to a rechargeable cell *** and a circuit disposed to control the switching type DC/DC converter. Claim 10 features the circuit including a resistor voltage divider coupled a feedback input of the converter, the resistor voltage divider having a resistor voltage divider ratio value selected to provide a voltage to the feedback input, to control the DC/DC converter to provide an output voltage that is less than the full charge voltage of the rechargeable cell.

The examiner considers that Fishman "disclose the claimed invention a hybrid power supply (figure 5) a switching type DC/DC converter, a primary cell , an Li-ion or Li-Polymer rechargeable cell, a resistor voltage, a feedback input (Col. 5, line 35-65) and resistance value selected (Co. 6, line 35-60)."

Applicant contends that Fishman does not teach that the DC/DC converter is coupled to the primary cell or another current limited DC power source. Fishman also does not teach a resistor voltage divider having a resistor voltage divider ratio value selected to provide a voltage to the feedback input, to control the DC/DC converter to provide an output voltage that is less than the full charge voltage of the rechargeable cell.

Fishman's units 20 and 30 are battery packs one for a NiMh cell and the other for a Li cell. Fishman provides "A portable device operable from batteries employing different cell technologies ... ." FIG. 5 of Fishman depicts details of the Li-ion Battery pack. FIG. 5 of Fishman neither discloses nor suggests a hybrid power supply.

The examiner contends that Fishman at (Col. 6, line 35-60) teaches "the resistor voltage divider having a resistor voltage divider ratio value selected to provide a voltage to the feedback input, to control the DC/DC converter to provide a fixed output voltage that is less than the full charge voltage of the rechargeable cell." At (Col. 6, line 35-60) Fishman describes:

> The DC/DC converter 30 serves as a DC power feeding circuit for converting a DC current and a DC voltage fed from, e.g., the AC adapter to a preselected voltage and a preselected current, respectively. For example, the converter 30 may advantageously be implemented by one capable of lowering a DC

> voltage of about 16 V input via the AC adapter to a voltage between 12.5 V to 13.0 V. In the illustrative embodiment, the converter 30 has a feedback terminal PB to which voltages are fed back from the voltage control circuit 34 and current limiting circuit 36. The converter 30 is therefore capable of adjusting its output voltage and output current in accordance with the above feedback voltages.

Fishman fails to suggest that the voltage divider ratio value is selected to provide a voltage to the feedback input to control the DC/DC converter to provide the output voltage that is less than the full charge voltage of the rechargeable cell. Rather, at Col. 5 lines 50-60, Fishman clearly teaches to charge at or above the full charge voltage for the rechargeable cell and Fishman uses a boost circuit to boost the lower Li-Ion voltage value up to the value that a device designed for NiMH cells would require.

One learns from Fishman that the Li-ion power pack can be adapted to provide power for a device that is designed for other battery technologies. However, Fishman has no appreciation of a hybrid power supply, including a switching type DC/DC boost type converter that receives energy from a primary cell with the primary cell being an alkaline cell, Zn-air cell, fuel cell, solar cell, or another current limited DC power source, and is arranged to deliver the energy to a rechargeable cell with the rechargeable cell being an Li-Ion or Li-Polymer rechargeable cell. Fishman does not suggest a resistor voltage divider coupled a feedback input of the converter, the resistor voltage divider having a resistor voltage divider ratio value selected to provide a voltage to the feedback input, to control the DC/DC converter to provide an output voltage that is less than the full charge voltage of the rechargeable cell.

Therefore, Fishman does not disclose every feature of the claimed invention and thus claim 10 is allowable.

Claims 11, 14-17, 19 and 35-37 are also allowable over Fishman since these claims either depend on claim 10 or include at least the limitation of "an output voltage that is less than the full charge voltage of the rechargeable cell."

The examiner rejected claims 20-34 under 35 U.S.C. 103(a) as being obvious over Payne in combination with Fishman et al (Fishman).

Claim 20 is distinct over Payne in combination with Fishman. Claim 20 is distinct since neither Payne nor Fishman disclose a switching type DC/DC boost type converter that receives energy from a primary battery cell ... and delivers energy to a rechargeable cell ... and with the switching type DC/DC converter set to provide a fixed output voltage that is less than the full charge voltage of the rechargeable cell.

As discussed above, Fishman does not disclose these features of claim 20, and Payne, does not cure these deficiencies in Fishman. Thus, the combination of Payne with Fishman does not arrive at applicant's claimed invention.

Additionally, claim 20 requires that ... the operational amplifier with a primary battery current sensing resistor provides primary battery current control and has the output of the amplifier coupled in a closed feedback loop with the DC/DC converter and the closed feedback loop of the converter further comprises a resistor coupled between output and feedback terminals of the converter. Payne does not suggest this arrangement. Rather, Payne teaches away from such an arrangement. For example, Payne teaches at Col. 3 lines 31-45:

> The feedback control circuit 60 provides the voltage control signal that is fed back to control the linear regulator 20. The feedback signal is derived from the output of the switching regulator 40 and is first ratioed by voltage divider resistors 62, 64 to one-sixth of its original value. This signal is provided to the non-inverting input of an op-amp 66. The inverting input is provided a reference voltage--here five volts. A feedback capacitor 68 connects the non-inverting input to the op-amp output and thereby provides a loop gain that diminishes with frequency. The output of the feedback loop is connected to resistor 26 of the linear regulator 20 and is used to regulate the current provided from the linear regulator.

Thus, in Payne, in addition to not curing the deficiencies of Fishman, Payne teaches to use feedback to provide a voltage control signal to control the linear regulator. Payne does not suggest that the operational amplifier with a primary battery current sensing resistor provides primary battery current control and has the output of the amplifier coupled in a closed feedback loop with the DC/DC converter ... . Accordingly, claims 20-34 are allowable over Payne in combination with Fishman et al (Fishman).

Newly added claim 38 depends on claim 10 and recites that the output voltage from the DC/DC converter is a fixed voltage a limitation previously found in claim 10.

Enclosed is a check for $50 for excess claims fee. Please apply any charges or credits to deposit account 06-1050.

Respectfully submitted,

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